WALCHEM
IWAKI America Inc.

Pump Support: Wiring

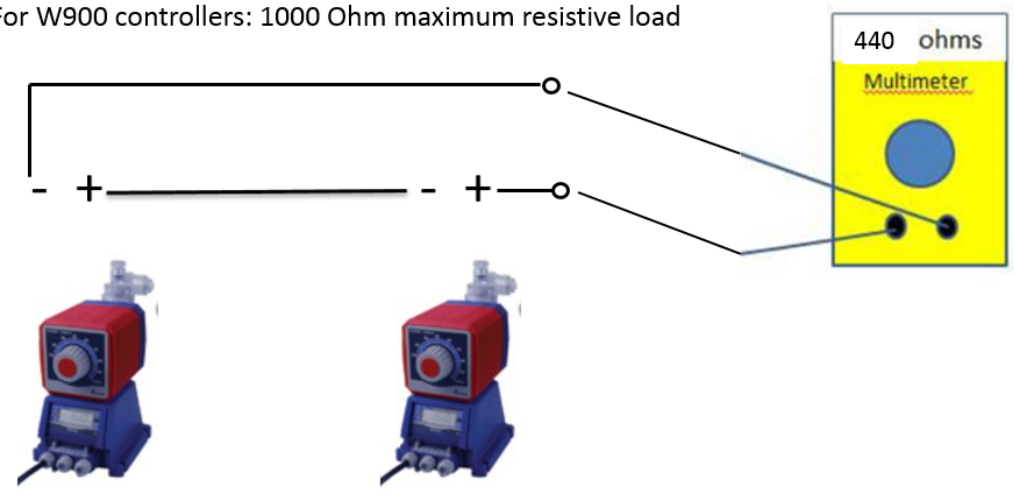
Controlling more than one metering pump using one 4-20 mA signal using a series loop sent from a W100, W600 or W900 controller

There are several guardrails that need to be adhered to when connecting a controller analog output (4-20mA) signal to external devices, such as metering pumps.

- From the controller side, we need to be careful how many pumps we drive with the analog output channel from any one particular controller W100, W600, W900.
  - For W100 and W600 controllers: 600 Ohm maximum resistive load
  - For W900 controllers: 1000 Ohm maximum resistive load
  - The performance with loads greater than 600 ohms for the W100 and W600 controllers, and greater than 1000 ohms for the W900 controller, drops off quickly and is not recommended to do.
- How do you determine the resistive load on an analog loop?
  - You can measure the total loop resistance at the controller by disconnecting those two analog signal wires coming in from the pumps; measure resistance across these 2 leads.

In this example, there are 2 EWN-Y pumps, each have a maximum input resistance of 220ohms.

- For W100 and W600 controllers: 600 Ohm maximum resistive load
- For W900 controllers: 1000 Ohm maximum resistive load



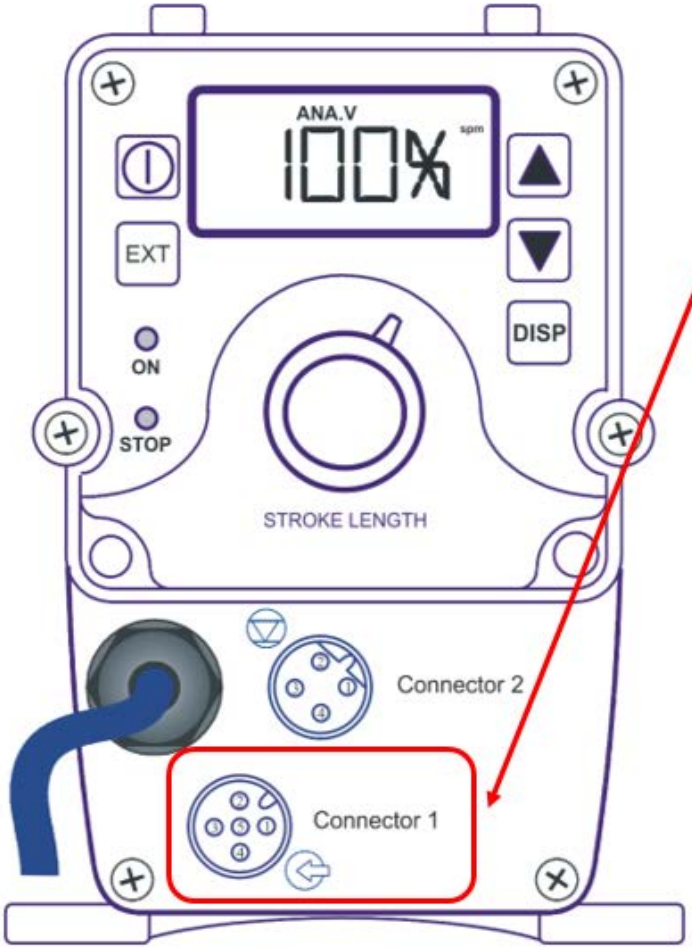
Iwaki Metering Pump maximum input resistance:

> EWN-Y: 220ohms
> EWN-R: 200ohms
> EHE: 200ohms

- From the pump side, here are analog signal wiring input connectors/terminals for Iwaki Metering Pump models EWN-R, EWN-Y and EHE.

EWN-R Metering Pump Connection Diagram

EWN-R Pump



CONNECTOR 1:
P/N E90495: 5-Pin Round, Standard Key

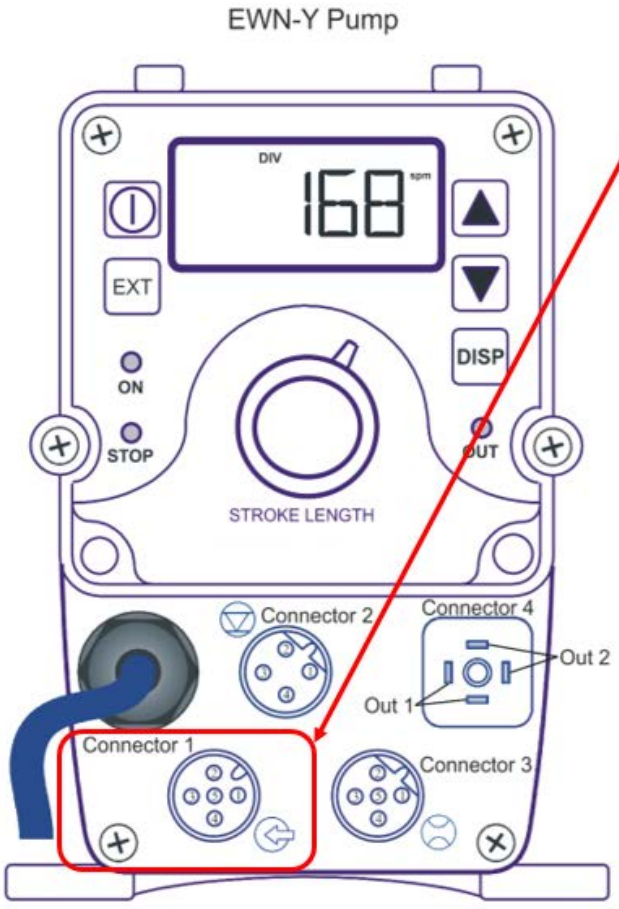
Pin #1: AUX Input (+)
Pin #2: DIG Pulse Input (+)
Pin #3: Analog Input (+)
Pin #4: OUT 1 (SPM or STOP Output)
Pin #5: Common (-)

CONNECTOR 2:
P/N E90496: 5-Pin Round, Reverse Key

Pin #1: Start/Stop Input
Pin #2: Pre-Stop Input
Pin #3: Not Used
Pin #4: Common
Pin #5: Not Used

*Note: Connectors are NOT supplied with pump.

EWN-Y Metering Pump Connection Diagram



CONNECTOR 1: (Supplied with Pump)
P/N E90495: 5-Pin Round, Standard Key

Pin #1: Analog or Digital Signal Input (+)
Pin #2: Analog OUTPUT (-)
Pin #3: Pulse, Interlock, Batch, Aux Input
Pin #4: Common
Pin #5: Analog OUTPUT(+) / 18VDC out

CONNECTOR 2:
P/N E90496: 5-Pin Round, Reverse Key

Pin #1: Start/Stop Input
Pin #2: Pre-Stop Input
Pin #3: Common
Pin #4: Common
Pin #5: not used

CONNECTOR 3:
P/N E90496: 5-Pin Round, Reverse Key

Pin #1: Sensor Signal Input
Pin #2: 24VDC Output (Sensor Power)
Pin #3: not used
Pin #4: Common
Pin #5: not used

CONNECTOR 4:
P/N E90497: 4-Pin Square, mini-DIN

Pin #1: Output 1 (mechanical relay)
Pin #2: Output 1
Pin #3: Output 2 (electrical relay)
Pin #4: Output 2

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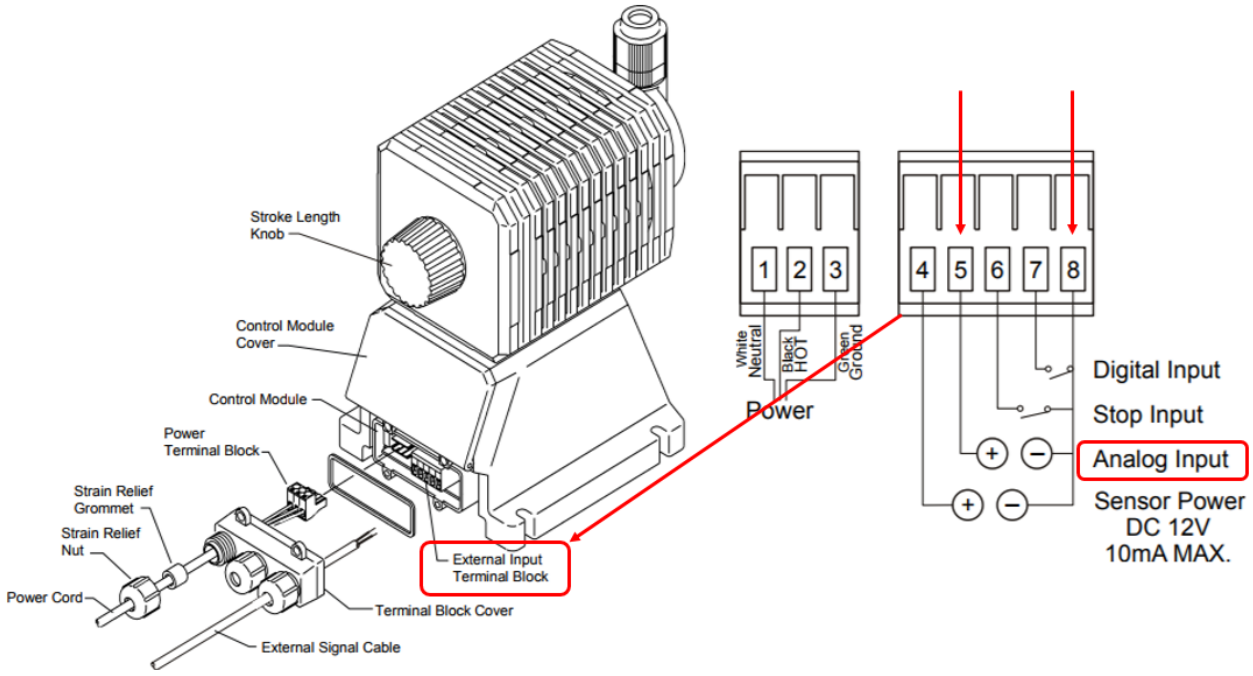
EHE Metering Pump Connection Diagram



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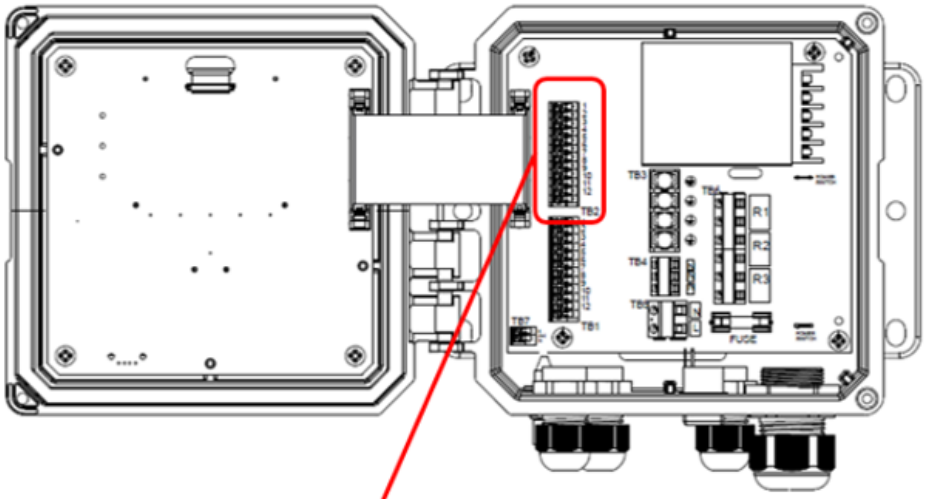
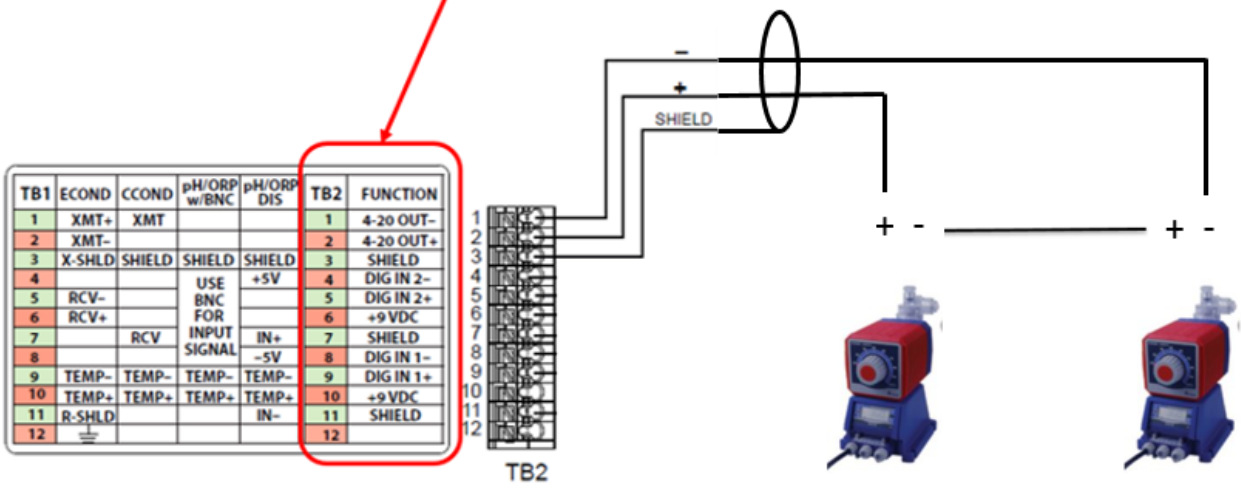
Pump Support: Wiring

See below for details on W100, W600 and W900 wiring.

The W100 controller must be ordered with the Analog Output option





TB1	ECOND	CCOND	pH/ORP w/BNC	pH/ORP DIS
1	XMT+	XMT		
2	XMT–			
3	X-SHLD	SHIELD	SHIELD	SHIELD
4			USE BNC FOR INPUT SIGNAL	+5V
5	RCV–			
6	RCV+			
7		RCV		IN+
8				–5V
9	TEMP–	TEMP–	TEMP–	TEMP–
10	TEMP+	TEMP+	TEMP+	TEMP+
11	R-SHLD			IN–
12	⏚			

TB2	FUNCTION
1	4-20 OUT–
2	4-20 OUT+
3	SHIELD
4	DIG IN 2–
5	DIG IN 2+
6	+9 VDC
7	SHIELD
8	DIG IN 1–
9	DIG IN 1+
10	+9 VDC
11	SHIELD
12	

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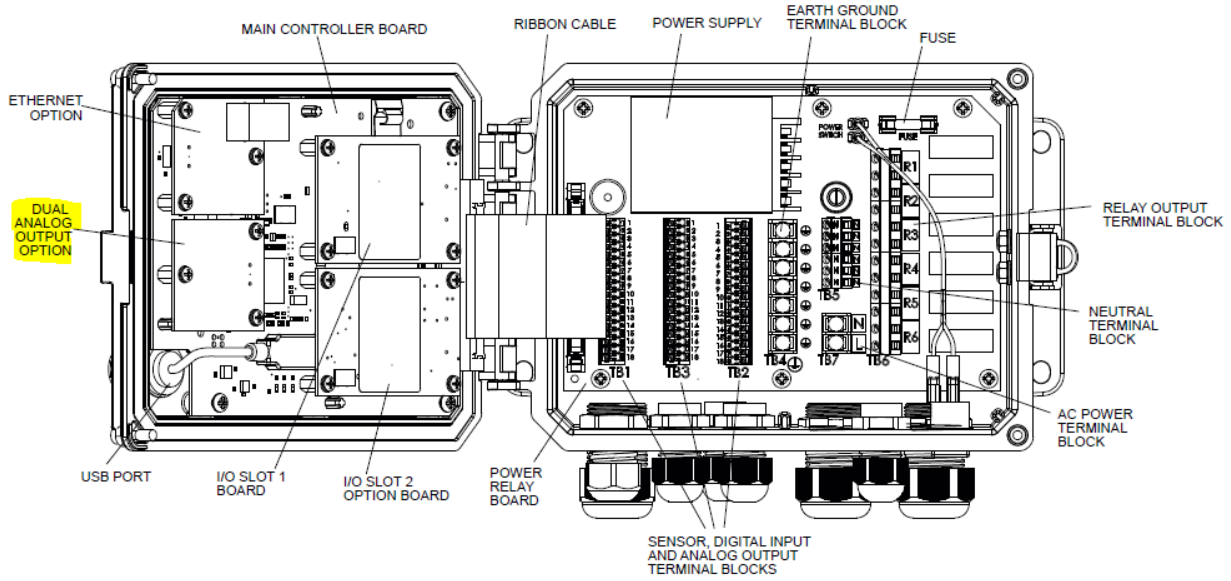
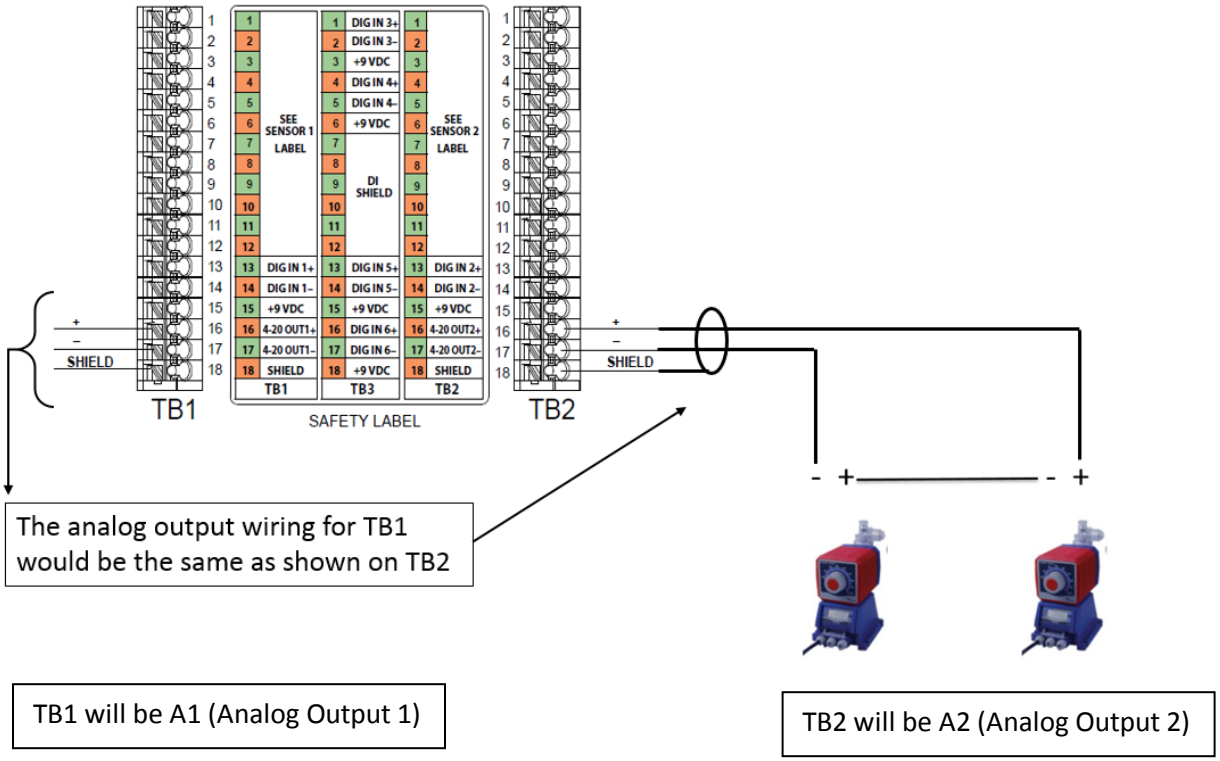
Pump Support: Wiring

The W600 Controller must have the Dual Analog Output Option Board installed as shown below:



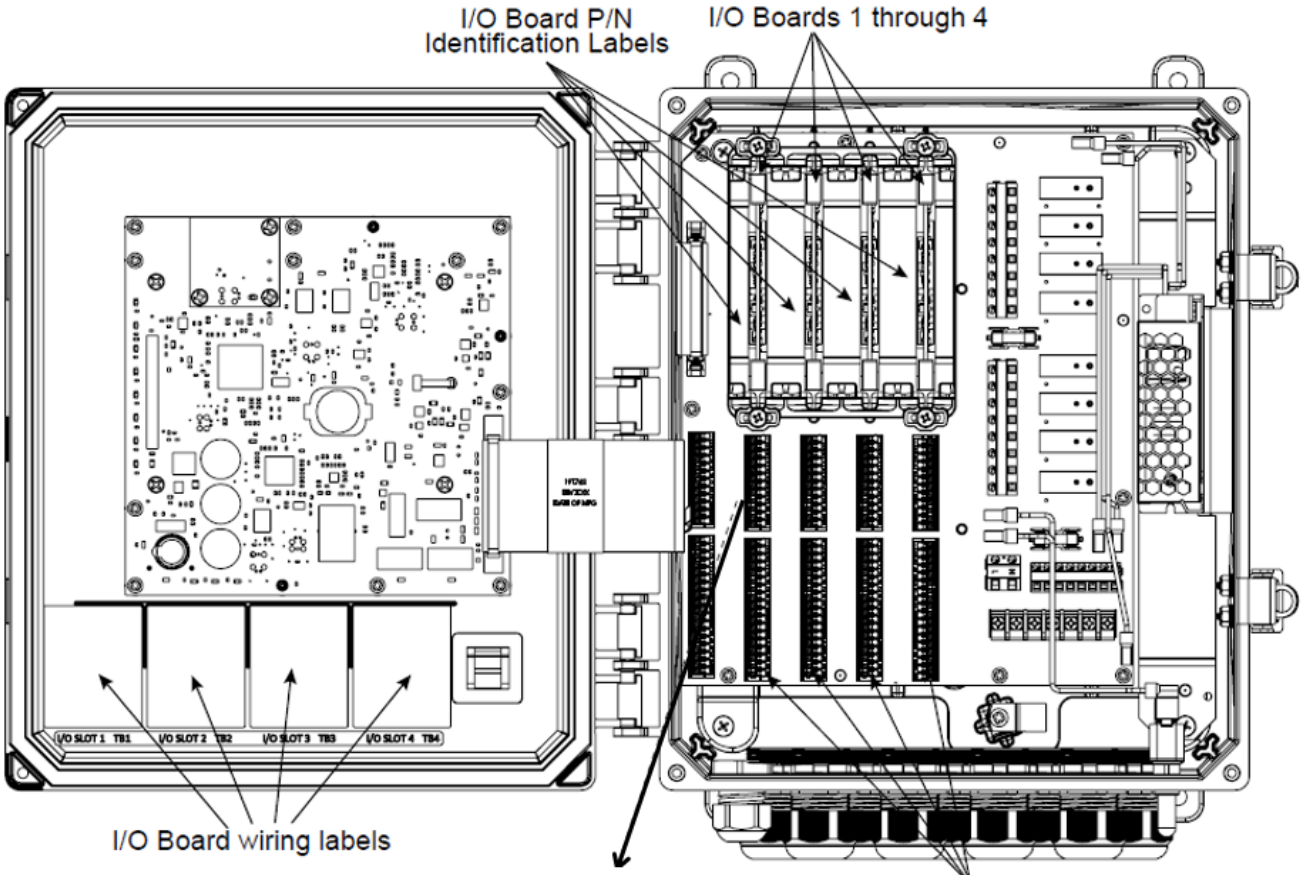


The analog output wiring for TB1 would be the same as shown on TB2

TB1 will be A1 (Analog Output 1)

TB2 will be A2 (Analog Output 2)

The W900 Controller must have one of the Analog Output Option Boards installed in one of the slots shown below:



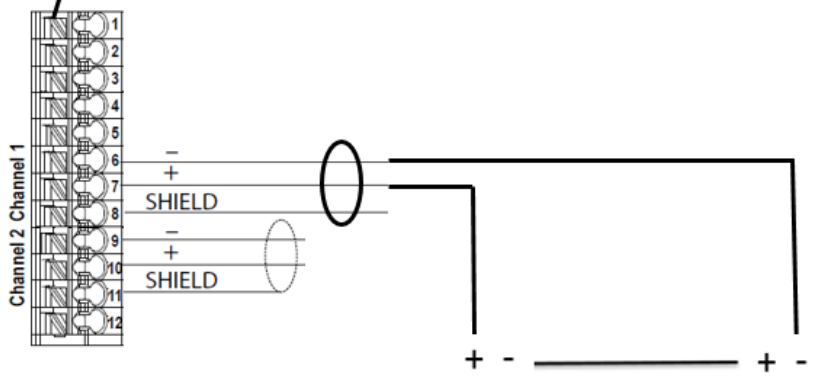
W900 Controller (continued)

(See previous page)

I/O Board Part Number

P/N 191915		4-20 mA OUTPUT (2)
TBxA - OUTPUTS 1-2		
TBxB - NOT USED		
TB	Ch	4-20 mA Output
1		
2		
3		
4		
5		
6	Out 1	OUT–
7		OUT+
8		⏚
9	Out 2	OUT–
10		OUT+
11		⏚
12		
13-18		⏚

Connect wires to the terminal blocks directly below the I/O board



Notes: **The analog output wiring for Channel 2 would be the same as shown on Channel 1**

Use the wiring label located on the front panel that has a matching I/O part number.

Each analog output is internally powered, 15 VDC, fully isolated.